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BOOK ANNOUNCEMENTS

Walter S. BRAINERD and Lawrence H. LANDWEBER, *Theory of Computation*, A Wiley-Interscience Publication (Wiley, New York–Chichester–Brisbane–Toronto, 1974) 331 pp.

List of Symbols. *Chapter* 1: *Introduction.* Algorithms, History, Sets, Relations, and Functions, The Representation of Data, Induction, Some Special Functions, Operations on Functions, Cardinality. *Chapter* 2: *An Algorithmic Language.* The Language PL, PL-Computable Functions, Church's Thesis and an Undecidable Problem, History. *Chapter* 3: *Recursive functions.* Primitive Recursive and Partial Recursive Functions, Recursion, Closure Properties, Minimization, Recursion Revisited, Recursion on the Length of a Word, Relations between Functions in Different Alphabets, The Pairing Function, Coding, Recursive Sets, History, Appendix: Proofs of Theorems in Section 3.7. *Chapter* 4: *Machine Languages.* Machines and Programs, The Unlimited-Register Machine, A Compiler for PL Programs, The Single-Register Machine, The Turing Machine, Sets Accepted by Machines, History. *Chapter* 5: *Labeled Markov Algorithms.* Basic Properties, Labeled Markov Algorithm Simulation of Turing Machine Programs, SNOBOL, Partial Recursiveness of Functions Computed by Labeled Markov Algorithms, Universal Functions and Programs, A Function that Is Not Recursive, The Index and Recursion Theorems History. *Chapter* 6: *Recursively Enumerable Sets.* Programs that Enumerate Sets, Properties of Recursively Enumerable Sets, An Indexing of the Recursively Enumerable Sets, Undecidable Problems. Effective Enumerability of Sets of Functions, Finite Sets, History. *Chapter* 7: *Formal Languages.* Post Production Systems, Recursive Enumerability of Each Language, A Grammar for Each Recursively Enumerable Set, Normal Systems, Production Rules with Multiple Antecedents, The Post Correspondence Problem, Contact-Sensitive, Context-Free, and Linear Grammars, Some Undecidable Properties of Grammars, The Undecidability of the Predicate Calculus, History. *Chapter* 8: *Reducibility.* Programs with Oracles, Degrees, Strong Reducibility, Post's Problem, The Arithmetic Hierarchy, History. *Chapter* 9: *Complexity of Computations.* Axioms for Dynamic Complexity Measures, Properties of Complexity Measures, Complexity Classes of Recursive Functions, Properties of Complexity Classes, The Speedup Theorem, History. *Chapter* 10: *Subrecursive Hierarchies.* A Hierarchy of Primitive Recursive Functions, Loop (1) Programs, A function that Is Not Primitive Recursive, The Grzegorczyk Hierarchy, History. *Chapter* 11: *Introduction to Combinatory Logic* (*by George W. Peltznick*). Introduction, The Calculi, Adequacy for Partial Recursiveness, Equivalence with Partial Recursive Functions, Consistency, Equivalence of Γ_κ and Λ_κ. *References. Index.*

Hartmut NOLTEMEIER, editor, *Graphtheoretic Concepts in Computer Science*, Proceedings of the International Workshop WG 80, Bad Honnef, June 1980, Lecture Notes in Computer Science, Vol. 100 (Springer-Verlag, Berlin–Heidelberg–New York, 1981). 403 pp.

Preface. *H. Maurer*: The post-office problem and related questions. *H. Nishio*: Series of graphs generated by rational machines. *K.-U. Witt*: On linearizing graphs. *H. J. Schneider*: Set-theoretic concepts in programming languages and their implementation. *M. Nagl*: Graph rewriting and automatic, machine-independent program optimization. *H. J. Ludwigs*: Properties of ordered graph grammars. *J. L. Bentley/Th. Ottmann*: The power of a one-dimensional vector of processors. *K. Mehlorn*: A new data structure for representing sorted lists. *G. Tinhofer*: On the use of some almost sure graph properties. *H. Noltemier*: On a generalization of heaps. *M. Schnitzler*: Graph grammars and the complexity gap in the isomorphism problem for acyclic digraphs. *A. L. Rosenberg* Issues in the study of graph embeddings. *C. Batini/A. D'Atri*: Schema hypergraphs: A formalism to investigate logical data base design. *P. Kandzia/M. Mangelmann*: The use of transitively irreducible kernels of full families of functional dependencies in logical data base design. *G. Ausiello/A. D'Atri/D. Saccà*: Graph algorithms for the synthesis and manipulation of data base schemes. *Th. Ottmann/H.-W. Six/D. Wood*: The analysis of search trees: A survey. *H.-W. Six*: A framework for

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